

# Environmental Protection Agency

## **Soak Temperature Monitor System Procedure**

This procedure is written for the Environmental Protection Agency, National Vehicle and Fuel Emissions Laboratory (NVFEL) internal use. The use of specific brand names by NVFEL in this procedure are for reference only and are not an endorsement of those products. This document may be used for guidance by other laboratories.

### **NVFEL Reference Number**

043

### **Implementation Approval**

Original Procedure Authorized by EPCN # 299 on 09-28-2001

### **Revision Description**

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## 1. Purpose

The purpose of this working procedure is to describe the equipment and procedure necessary to monitor the temperature in the Large and West Soak areas of the Environmental Protection Agency (EPA) Laboratory Operations Division (LOD). The temperature in these areas must be maintained within 68 - 86 °F. The Soak Temperature Monitor (STM) system uses 6 J-type thermocouples located in the following areas:

Sensor	Location
Large Soak Sensor 1	Between Room 522 and Restroom
Large Soak Sensor 2	Between Room 526 and Cold Test Facility Access Door
Large Soak Sensor 3	Between Room 511 and Room 318
Large Soak Sensor 4	Support pillar near the fuel bay
West Soak Sensor 1	Center support pillar near the Large Soak Access Door
West Soak Sensor 2	Center support pillar near the Canister Preconditioning area

The temperature signals are conditioned by 3 "SNAP\_AITM" analog input modules and processed by an OPT0022 SNAP B3000-ENET "BRAIN." The "BRAIN" transmits the information on the Laboratory Network System (LNS) and it is displayed on the Soak Temperature Monitor. The "BRAIN" and modules are located in a cabinet on the north wall in Room 318.

The STM computer and monitor is located in the Site 2 control room.

## 2. Test Procedure

- 101 The STM computer should continuously display the "Soak Temperature Monitor" screen. See Figure 1. Soak area temperature is automatically displayed and logged on the STM computer. Logged data is stored on the database, "SoakTemps.mdb."

The background color of the STM is gray. If the background color is yellow, the Soak Temperature Viewer is displayed. The Soak Temperature Viewer does not log data and cannot be used in place of the STM.

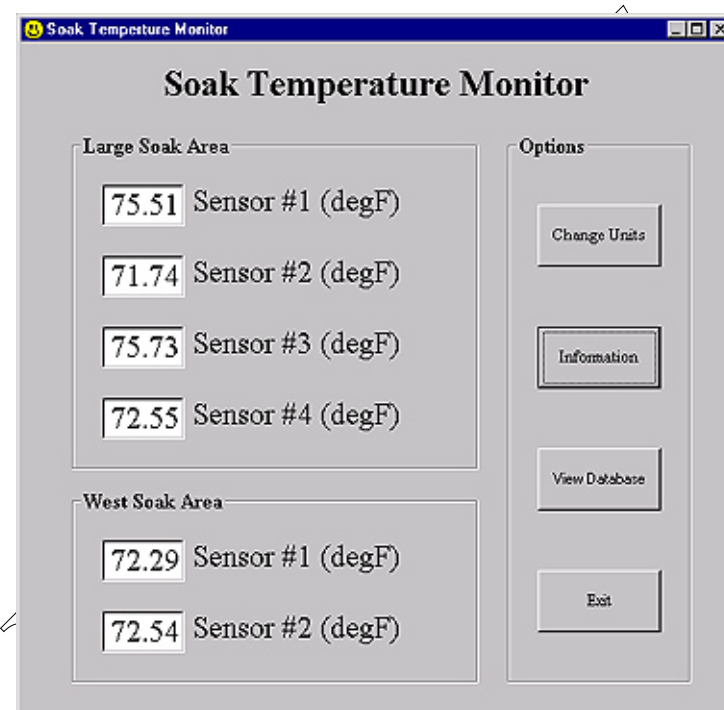


Figure 1

- 102 If the Soak Temperature Monitor screen is not displayed, it may be minimized. Check the task bar at the bottom of the screen for the "SoakTempMonitor" button. Select the button to restore the Soak Temperature Monitor screen. If it is not minimized, check the desktop and double-click on the "SoakTempMonitor.exe" icon.

If the following message appears, the application is already loaded. See Figure 2. More than one instance of the application cannot be loaded onto the system.

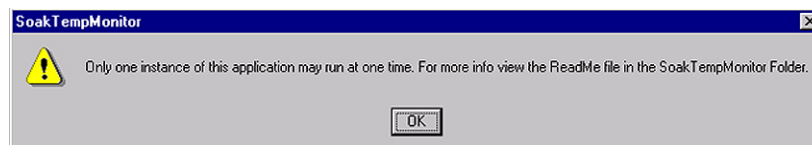


Figure 2

- 103 If another instance of the application is not running, and the Multiple Application Warning continues to appear, restart the computer and log-on to Windows NT with the user-name "Admin." A password is not necessary.

The program should load automatically. If the program does not load, click on the "SoakTempMonitor.exe" icon. See Figure 3. If the program does not load, contact the LNS Network Administrator.

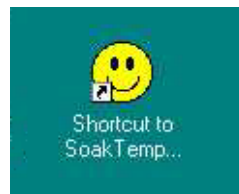


Figure 3  
SoakTempMonitor.exe Shortcut

- 104 If the soak area temperature is within 2 °F of violating the 68 - 86 °F requirement, the text-box background color will turn yellow and an audible warning will be emitted, to alert the technician that an out-of-tolerance temperature condition may be eminent. See the arrow in Figure 4.

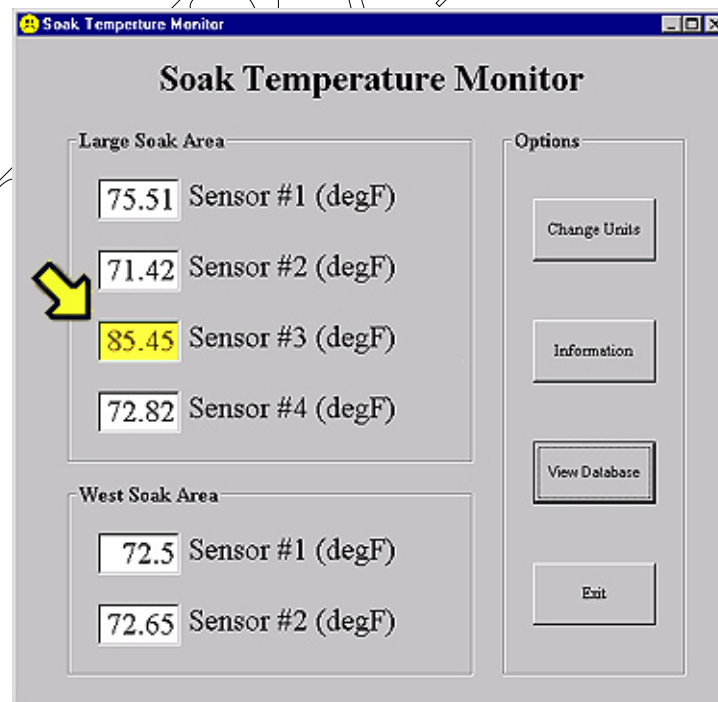


Figure 4  
2 °F Warning

- 105 If the soak area temperature falls below 68 °F, or rises above 86 °F, the STM will show the out of tolerance sensor temperature in red and will include a warning icon. See the arrow in Figure 5.

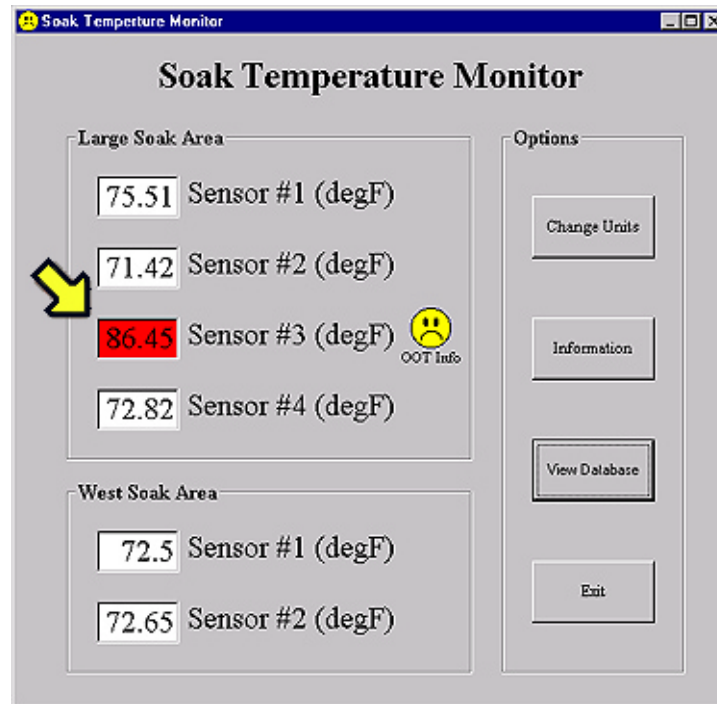


Figure 5  
Out of Tolerance Warning

- 106 Save and print a hard copy of the out-of-tolerance event by clicking on the "OOT Info" icon on the STM screen. See the arrow in Figure 6.

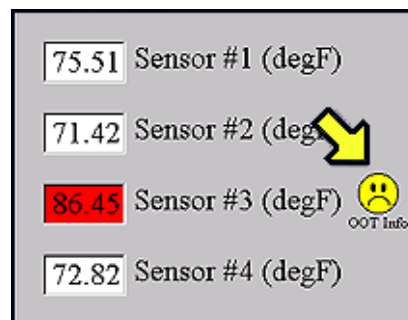


Figure 6  
OOT Info Icon

When the "Out of Tolerance Information" dialog box appears, enter your "Name and ID Number" by clicking on the pull-down menu and selecting it from the list. See arrow 1 in Figure 7. Click in the text box and use the keyboard to enter comments. See arrow 2 in Figure 7. Click on the "File/Print" button. See arrow 3 in Figure 7.

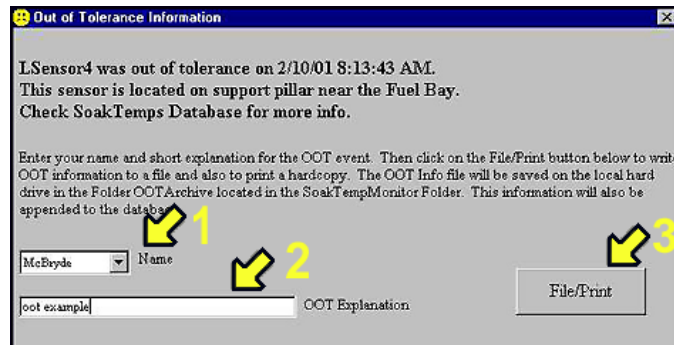


Figure 7  
Out of Tolerance Text

107 File the report in the box next to the computer. The file will be electronically saved on the hard drive in the "Micron (C:)SoakTempMonitor\OOTArchive" folder.

Notify the senior technician to initiate resolution of the out-of-tolerance condition.

108 To view the STM database, click-on the Soak Temperature Monitor "View Database" button. See the arrow in Figure 8.

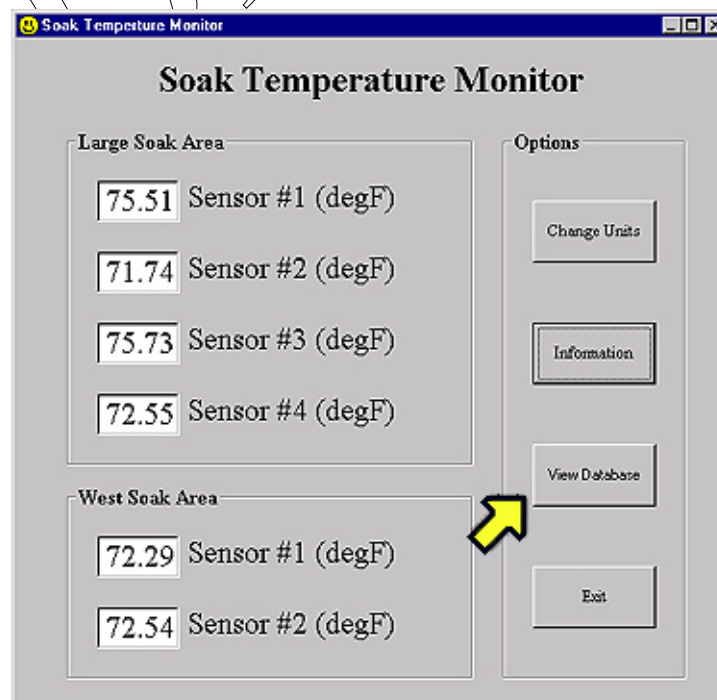
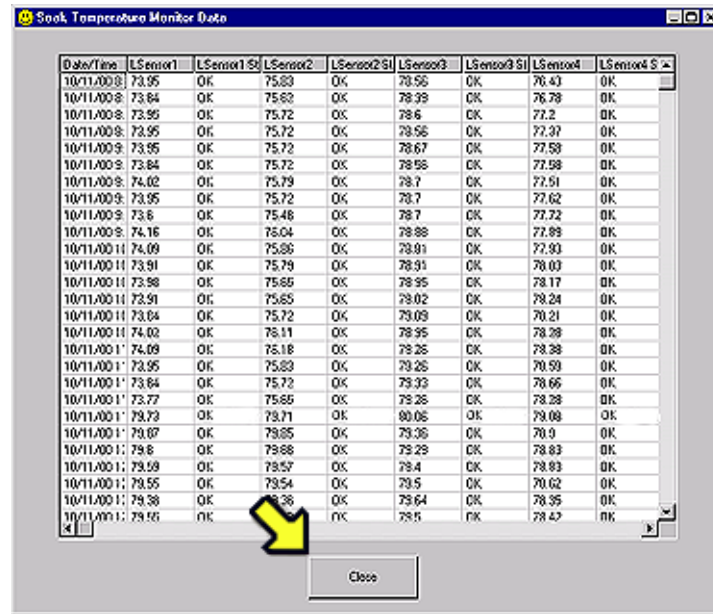


Figure 8  
View Data Button

- 109 When the "Soak Temperature Monitor Data" screen appears, use the vertical and horizontal scroll bars to locate and observe the desired "date/time," sensor readings, and status conditions. See Figure 9.

Click on the "Close" button to close the "Soak Temperature Monitor Data" screen. See the arrow in Figure 9.



Date/Time	LSensor1	LSensor1 St	LSensor2	LSensor2 St	LSensor3	LSensor3 St	LSensor4	LSensor4 St
10/11/00 8	73.95	OK	75.83	OK	78.55	OK	76.43	OK
10/11/00 8	73.84	OK	75.82	OK	78.39	OK	76.78	OK
10/11/00 8	73.95	OK	75.72	OK	78.6	OK	77.2	OK
10/11/00 9	73.95	OK	75.72	OK	78.56	OK	77.37	OK
10/11/00 9	73.95	OK	75.72	OK	78.67	OK	77.58	OK
10/11/00 9	73.84	OK	75.72	OK	78.58	OK	77.58	OK
10/11/00 9	74.02	OK	75.79	OK	78.7	OK	77.51	OK
10/11/00 9	73.95	OK	75.72	OK	78.7	OK	77.62	OK
10/11/00 9	73.8	OK	75.48	OK	78.7	OK	77.72	OK
10/11/00 9	74.16	OK	75.04	OK	78.88	OK	77.89	OK
10/11/00 11	74.09	OK	75.86	OK	79.91	OK	77.93	OK
10/11/00 11	73.91	OK	75.79	OK	78.91	OK	78.03	OK
10/11/00 11	73.98	OK	75.65	OK	78.95	OK	78.17	OK
10/11/00 11	73.91	OK	75.65	OK	79.02	OK	78.24	OK
10/11/00 11	73.04	OK	75.72	OK	79.09	OK	78.21	OK
10/11/00 11	74.02	OK	78.11	OK	78.95	OK	78.38	OK
10/11/00 11	74.09	OK	78.18	OK	79.25	OK	78.38	OK
10/11/00 11	73.95	OK	75.83	OK	79.25	OK	78.59	OK
10/11/00 11	73.84	OK	75.72	OK	79.33	OK	78.66	OK
10/11/00 11	73.77	OK	75.65	OK	79.25	OK	78.28	OK
10/11/00 11	73.73	OK	73.71	OK	80.05	OK	79.08	OK
10/11/00 11	73.67	OK	73.85	OK	79.36	OK	78.9	OK
10/11/00 11	73.8	OK	73.88	OK	79.29	OK	78.83	OK
10/11/00 11	73.59	OK	73.57	OK	79.4	OK	78.83	OK
10/11/00 11	73.55	OK	73.54	OK	79.5	OK	78.62	OK
10/11/00 11	73.38	OK	73.38	OK	79.64	OK	78.35	OK
10/11/00 11	73.55	OK	73.55	OK	79.5	OK	78.47	OK

Figure 9  
Soak Temp Monitor Data



- 110 The STM application should run continuously. If it is necessary to shut down the program, it can only be done by clicking on the Soak Temperature Monitor "Exit" button. See the arrow in Figure 10.

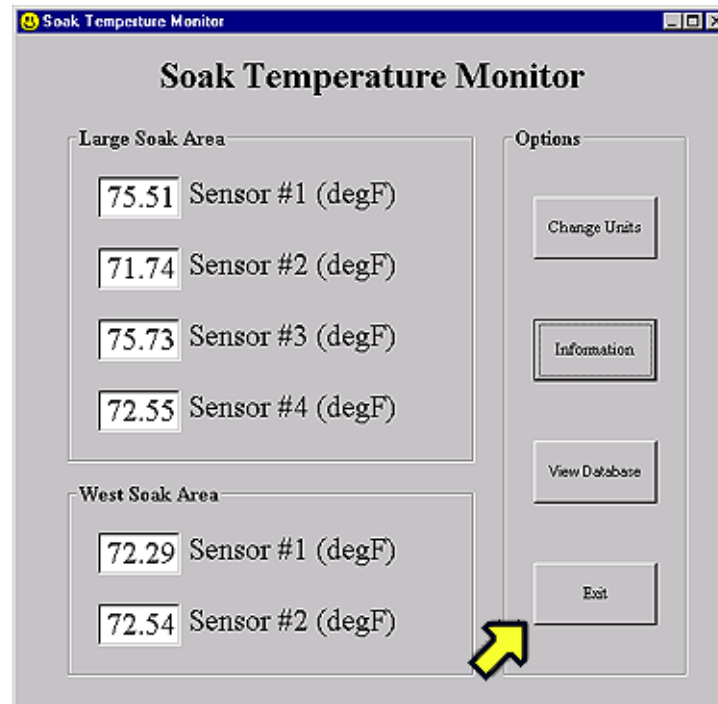


Figure 10  
Exit Button

- 111 In the "Soak Temperature Monitor Exit" dialog box, enter your "Name and ID Number" by clicking on the appropriate down-arrow and selecting it from the list. See Arrow 1 in Figure 11. Click on the down-arrow next to "Reason" and use the keyboard to enter the justification for exiting the program. See Arrow 2 in Figure 11. Click on the "OK" button. See Arrow 3 in Figure 11.

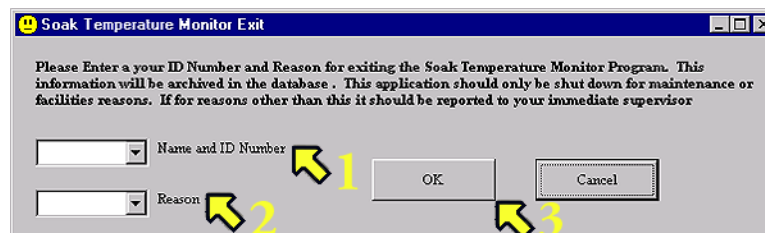


Figure 11  
Soak Temperature Monitor Exit

- 112 If means other than described in Steps 110 and 111 are attempted, a "Soak Temp Monitor" dialog box will appear. See Figure 12. Select the "OK" button and go to Step 110.



Figure 12  
Soak Temperature Monitor Exit

- 113 If the connection to the LNS is lost, the STM will automatically attempt to reconnect to the system. A red warning message will appear to alert the operator of the disconnection. See Figure 13.

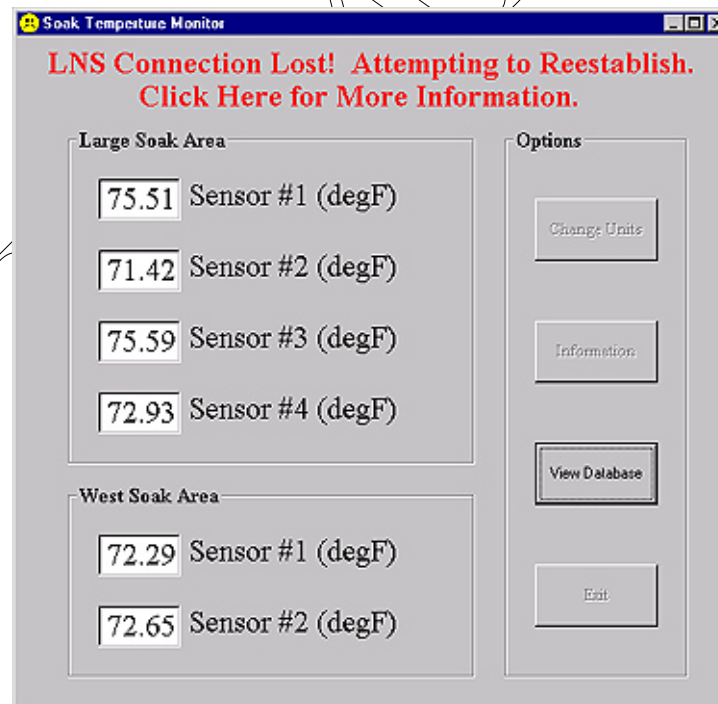


Figure 13  
Lost Connection Warning

**Note:** A help file, "Readme.txt" containing troubleshooting information is available in the "Micron(C:)\SoakTempMonitor\Resources" directory.

### 3. Acceptance Criteria

- 3.1 The Large and West Soak temperature areas must be maintained within 68 - 86 °F.
- 3.2 The STM application should run continuously. If it is necessary to shut down the program, it can only be done by clicking on the Soak Temperature Monitor "Exit" button and following the succeeding on-screen instructions.

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